

## **REMARKS**

Reconsideration of this application is respectfully requested in view of the foregoing amendment and the following remarks.

By the foregoing amendment, claims 1, 9, 17, 20, 26, and 28 have been amended. No new matter has been added. Thus, claims 1-7, 9-15, 17-18, 20-21, and 23-30 are currently pending in the present application and subject to examination.

### **I. Objection to the Drawings**

In the Office Action dated October 2, 2006, the Examiner objected to Figures 1-3, asserting that they should include the legend "prior art". Replacement sheets for Figures 1-3 are submitted herewith.

### **II. Rejection of the Claims**

The Examiner rejected Claims 1-7, 9-15, 23, 24, 29 and 30 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,338,525 to Kilgore ("Kilgore") in view of U.S. Patent No. 4,024,443 to Schmucker et al. ("Schmucker") or U.S. Patent No. 2,451,936 to Frisch ("Frisch"). The Examiner rejected claims 17, 18, 20, 21, and 25-28 under 35 U.S.C. § 103(a) as being unpatentable over Kilgore in view of Schmucker or Frisch and further in view of U.S. Patent No. 3,812,411 to Johnson et al. ("Johnson"). It is noted that claims 1, 9, 17, 20, 26, and 28 have been amended. To the extent that the rejections remain applicable to the claims currently pending, the Applicant hereby traverses the rejections as follows.

#### **A. Claims 1-7, 17-18, 23, 25-27, and 29**

Applicant's invention as now set forth in amended claim 1 is directed to a system for at least one of limiting the motion of a rotor of a propeller motor of a propulsion unit

and restraining the angular position of a rotor of a propeller motor of a propulsion unit, the system including at least a switch arrangement disconnecting the propeller motor from the electrical power network and for short-circuiting the stator windings of the propeller motor.

The Office Action states that dynamic braking is old in the art and that “applicant should realize that the dynamic braking apparatus and method of the invention without the reverse function of the motor and propeller fail to provide the stop function of the ship.” However, the Applicant submits that the object of the invention recited in claim 1 is not for dynamic braking of a ship, but for limiting the motion of the rotor of a propeller or restraining the angular position of a rotor of a propeller motor of a propulsion unit.

As discussed in paragraph [0015] of the present application, “Should one or more of the propellers get damaged, it should be possible to move the vessel for service. The problem is, that should the vessel be moved, the damaged propeller will easily start rotating and causes additional damage to the propulsion device and possibly also to the vessel.” The invention recited in amended claim 1 allows a vessel with a damaged propeller to be moved for service while preventing the damaged propeller from beginning to rotate and cause additional damage to the propulsion device or vessel by limiting the motion of a rotor of a propeller motor of the propulsion unit or by restraining the angular position of the rotor of the propeller motor of the propulsion unit.

In contrast, in dynamic braking, the propeller is allowed to rotate the achieve a “windmilling” effect as it is being dragged through the water while the ship moves in the water so that the electric motor that is mechanically connected to the propeller functions as a generator instead of an electric motor. (See description at Johnson in column 1,

lines 16-26). The current produced by the propeller, as it acts as a generator, can be fed to a braking resistor that converts the current into heat. As the propeller is allowed to rotate, the ship slows down more quickly than if the propeller is simply stopped. (See Johnson at column 1, lines 20-35).

The invention recited in claim 1 is not directed to dynamic braking. The switch arrangement recited in claim 1 disconnects the propeller motor from the electrical power network and short-circuits the stator windings of the propeller motor. When the stator windings of the propeller are short-circuited, the electric motor cannot function as a generator in a system/method for dynamic braking of a ship. Claims 25 and 27 recite that the stator windings are short-circuited by the switch arrangement when the absence of supply power to the propeller motor is detected.

The Office Action admits that Kilgore does not disclose a switch arrangement disconnecting the propeller motor from the electrical power network and for short-circuiting the stator windings of the propeller motor, as recited in claim 1.

The Office Action asserts that even though Kilgore does not specify whether the electric motor is disconnected from the electrical power network or not, one of skill in the art would understand that it is necessary to disconnect the motor from the electrical power network in order to prevent damage to the power network of the dynamic braking resistors.

As discussed above, the invention recited in claim 1 is not directed to dynamic braking.

A prior art reference must be considered in its entirety, including portions that would lead away from the claimed invention. See MPEP 2141.02. Kilgore specifically

teaches in column 5, lines 32-38 that the motor is never disconnected from the electrical network, stating “[i]t is anticipated that, during transition from one connection mode to the other, both switchgear means 18 and 20 will temporarily be closed simultaneously so as to guarantee continuity between the generator 12 and the motor 16.” The Office Action cannot disregard this teaching in Kilgore.

The Office Action cites Schmucker and Frisch, as teaching disconnecting a motor in dynamic braking. However, a modification to a reference cannot render the prior art invention unfit for its intended purpose. See MPEP 2143.01. Kilgore specifically teaches continuity between the generator and the motor to provide dynamic braking. A modification based on the teaching in Schmucker or Frisch regarding disconnecting the motor directly contradicts the principle of operation taught in Kilgore (i.e., a disconnected motor would provide no dynamic braking effect). Such a modification would render Kilgore unfit for its intended purpose.

In the Response to Arguments, the Office Action states that Applicant’s only argument is Kilgore’s electric motor never disconnects from the electrical power network. However, the Applicants assert that Kilgore does not disclose the combination of a switch arrangement disconnecting the propeller motor from the electrical power network and for short-circuiting the stator windings of the propeller motor, as recited in amended claim 1.

In Kilgore, at event T, the braking resistor is electrically connected across the windings of the motor 16 to cause dynamic braking. (See Kilgore column 7, lines 45-56). In column 5, lines 42-48, Kilgore explains that the braking resistor can be connected to the motor by opening switchgear 44 and that during a rapid stop

procedure when the motor 16 acts as a generator, this resistor 42 dissipates energy and provides dynamic braking capability. Thus, when switch 44 is opened, the motor is **still connected** to the electrical power network and to the generator 12, because the motor is connected to the electrical power network via the braking resistor 42, **and is not short circuited**.

The Applicants request that the Examiner provide a citation of the specific section of Kilgore that the Examiner asserts discloses short circuiting the stator windings of the propeller motor.

The Applicant submits that Kilgore does not disclose or suggest a system for at least one of limiting the motion of a rotor of a propeller motor of a propulsion unit and restraining the angular position of a rotor of a propeller motor of a propulsion unit, the system including at least a switch arrangement disconnecting the propeller motor from the electrical power network and for short-circuiting the stator windings of the propeller motor, as recited in amended claim 1.

Johnson, Frisch, and Schmucker fail to cure the deficiency in Kilgore.

For at least these reasons, the Applicant submits that claim 1 is allowable over the cited art. For similar reasons, the Applicant submits that claims 17, 25, and 27 are likewise allowable over the cited art. As claims 1, 17, 25, and 27 are allowable, Applicant submits that claims 2-7, 18, 23, 26, and 29, which depend from allowable claims 1 and 17, are likewise allowable over the cited prior art.

B. Claims 9-15, 20-21, 24, 26, 28 and 30

The Applicants submit that Kilgore does not disclose or suggest a propulsion unit including the combination of a turning arrangement including at least one motor unit for

turning the propulsion unit, the at least one motor unit including a magnetization device and stator windings and a switch arrangement for disconnecting the at least one motor unit of the turning arrangement for turning the propulsion unit from the electrical power network and for short circuiting the stator windings of the at least one motor unit of the turning arrangement for turning the propulsion unit, as recited in claim 9.

If there were a sudden break-down in the electric power supply to the motors in the turning arrangement for the propulsion unit, a sudden turning of the propulsion unit might cause additional damage to a propulsion device and possibly also to the vessel. The invention recited in claim 9 avoids considerable impairment to the maneuverability of the vessel by preventing the propulsion device from recklessly turning this way and that.

Johnson, Frisch, and Schmucker fail to cure the deficiency in Kilgore.

For at least this combination of reasons, the Applicant submits that claim 9 is allowable over the cited art. For similar reasons, the Applicant submits that claims 20, 26, and 28 are likewise allowable over the cited art. As claims 9 and 20 are allowable, the Applicants submit that claims 10-15, 21, 24, and 30 are therefore allowable for at least the above noted reasons.

With regard to each of the rejections under §103 in the Office Action, it is also respectfully submitted that the Examiner has not yet set forth a *prima facie* case of obviousness. The PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 U.S.P.Q.2nd 1596, 1598 (Fed. Cir. 1988). Both the case law of the Federal Circuit and the PTO itself have made clear that where a modification must be made to the prior art to reject or invalidate a claim under §103, there must be a

showing of proper motivation to do so. The mere fact that a prior art reference could arguably be modified to meet the claim is insufficient to establish obviousness. The PTO can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. Id. In order to establish obviousness, there must be a suggestion or motivation in the reference to do so. See also In re Gordon, 221 U.S.P.Q. 1125, 1127 (Fed. Cir. 1984) (prior art could not be turned upside down without motivation to do so); In re Rouffet, 149 F.3d 1350 (Fed. Cir. 1998); In re Dembiczak, 175 F.3d 994 (Fed. Cir. 1999); In re Lee, 277 F.3d 1338 (Fed. Cir. 2002).

In the Office Action, the Examiner merely states that the present invention is obvious in light of the cited references. See, e.g., Office Action at pages 5-6. This is an insufficient showing of motivation.

### **CONCLUSION**

For all of the above reasons, it is respectfully submitted that the claims now pending patentability distinguish the present invention from the cited references. Accordingly, reconsideration and withdrawal of the outstanding rejections and an issuance of a Notice of Allowance are earnestly solicited.

Should the Examiner determine that any further action is necessary to place this application in condition for allowance, the Examiner is encouraged to telephone the undersigned representative at the number listed below.

In the event this paper is not considered to be timely filed, the Applicants hereby petition for an appropriate extension of time. The fee for this extension may be charged

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to our Deposit Account No. 01-2300. The Commissioner is hereby authorized to charge any fee deficiency or credit any overpayment associated with this communication to Deposit Account No. 01-2300 with reference to Attorney Docket No. 108306-00025.

Respectfully submitted,

Arent Fox PLLC

A handwritten signature in black ink, appearing to read "Sheree Rowe", written in a cursive style.

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